May 11, 1965

Mr. D. D. Tunnicliff
Analytical Department
Shell Development Co.
Emeryville, California

Dear Mr. Tunnicliff:

My thanks for your letter of 28 April, which gives me a much clearer picture of the standing of your program in dealing with some of the woolier situations. I have to agree that no precise solution may be imaginable for some situations, and I had in mind not only the possibility of essentially identical spectra, but perhaps less easy to anticipate, cases where different combinations of spectra might be expected to yield substantially the same sums. Whatever the hypothetical possibilities of the occurrences of these pitfalls, some practical experience would be the surest guide to evaluating their importance, and it is for just this reason that I included in my review comment an opinion that your further discussion, which was elaborated in the letter, would be of value to just those readers who would be particularly interested in the subject at hand. It would of course be quite impractical to consider every possible combination of the items in a large library of spectra, but we might imagine the development of some heuristics, at least to find the most confusing potential combinations of spectra that would be virtually certain to lead to an unresolved ambiguity.

We would like to try mounting your program on our 7090 under IBSYS. Am I asking a great trouble on your part to furnish a card deck or a tape of the FORTRAN program for us to work over for this purpose, or has the revision already been made? We would of course repay any costs involved in preparing a copy. Your writeup seems quite clear and I hope I would not have to burden you with too many questions.

The utility of the program for our immediate purposes--evaluation of amino acid mixtures, partially resolved by GLC--is somewhat speculative, but I feel the experience would be instructive.

Many thanks,

Joshua Lederberg
Professor of Genetics

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TUNNICLIFF, D.D.